

What is claimed:

1. A fusion protein comprising a protein containing a modular protein binding domain (MPBD), and an exogenously introduced coiled-coil heterodimerization domain.
2. The fusion protein of claim 1, wherein the MPBD is selected from the group of domains consisting of src homology 2 (SH2), src homology 3 (SH3) phosphotyrosine binding (PTB) WW, PDZ, 14.3.3, WD40, EH and Lim.
3. The fusion protein of claim 1, wherein the protein containing a MPBD is a tyrosine kinase.
4. The fusion protein of claim 3, wherein the MPBD is src homology 3.
5. A gene encoding the fusion protein of claims 1, 2, 3 or 4.
6. A gene encoding the fusion protein of claim 1, wherein said gene comprises a WIN-ZIP-A1 synthetic amphipathic helix.
7. A gene of claim 6, further comprising a sequence selected from the group consisting of: an HA epitope tag, a BamHI cloning site, and a Kozak translation site.
8. A gene encoding the fusion protein of claim 1, wherein said gene comprises a WIN-ZIP-B1 synthetic amphipathic helix.
9. A gene of claim 8, further comprising a sequence selected from the group consisting of: an Myc epitope tag, a BamHI cloning site, and a Kozak translation site.
10. A vector containing the gene of claim 6.
11. A cell that is transformed by the vector of claim 10.
12. A vector of claim 10 wherein the gene is operably linked to a promoter.
13. A vector containing the gene of claim 8.
14. A cell that is transformed by the vector of claim 13.
15. A vector of claim 13 wherein the gene is operably linked to a promoter.

16. A cell that is cotransformed with the vector of claim 10 and the vector of claim 13.

17. The fusion protein of claim 1, wherein the coiled-coil heterodimerization domain is from an exogenous source.

18. The fusion protein of claim 1, wherein the coiled-coil heterodimerization domain is artificially constructed.

19. The fusion protein of claim 1, wherein the coiled-coil heterodimerization domain is a WIN-ZIP segment.

20. The fusion protein of claim 1, wherein the coiled-coil heterodimerization domain is a WIN-ZIP-A1 segment.

21. The fusion protein of claim 1, wherein the coiled-coil heterodimerization domain is a WIN-ZIP-B1 segment.

22. A library of proteins wherein said proteins contain modular protein binding domain, and each protein has been fused to a WIN-ZIP coiled-coil heterodimerization segment.

23. A library of proteins, wherein said proteins each contain a binding site that binds to a modular protein binding domain (MPBD) and wherein said proteins have been fused to at least one copy of an exogenously introduced WIN-ZIP coiled-coil heterodimerization segment.

24. A library of nucleic acid sequences encoding the library of claim 22.

25. A viral library comprising the nucleic acid sequences of claim 24.

26. A library of nucleic acid sequences encoding the library of claim 23.

27. A viral library comprising the nucleic acid sequences of claim 26.

28. An assay for determining the activity of a protein-protein interaction, comprising:

- (a) transforming a cell by the vector of claim 10, and the vector of claim 13;
- (b) culturing the transformed cell;
- (c) and comparing the activity to a base line control; and
- (d) looking at any change in biological activity to determine the activity of the protein-protein interaction.

29. The assay of claim 28, wherein the control constitutes at least two cells wherein each of said cells is transformed by one of the two vectors but not the other.

29. The assay of claim 28, wherein the control constitutes at least two cells wherein each of said cells is transformed by one of the two vectors but not the other.